

APPENDIX A

**PALLETTE RANCH
WALLOWA COUNTY, OREGON**

RESTORATION, REVEGETATION, AND MONITORING PLAN

APRIL 5, 2005

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Restoration Plan, Pallette Ranch, Imnaha River, Oregon

1.0 INTRODUCTION

The project area (Figure 1) on the Palette Ranch has been evaluated for a number of years by personnel from the Environmental Protection Agency (EPA), NOAA Fisheries, U. S. Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of State Lands (ODSL), Nez Perce Tribe, and U. S. Forest Service (USFS). The objective has been to resolve issues relating to restoration of vegetative communities and river functions along the Imnaha River. Based on agreements reached at various times in the evaluation, interim measures were developed and implemented prior to resolution of a holistic Restoration Plan for the area in question. Interim measures were developed as follows:

- A project work plan was prepared in late 1998 to implement Interim Measures No. 1 to remove two of the three dikes that blocked island side channels. Interim Measures No. 1 resulted in the removal of Dike 1 at Site G and Dike 2 at Site H during November 1998. A third dike (Dike 3) at Site A was not removed at that time. The landowner prepared and implemented the voluntary work plan as a show of “good faith” to resolve issues.
- A Project work plan dated October 8, 2001 was prepared for implementation of Interim Measures No. 2. The landowner prepared and implemented the voluntary Work Plan as a show of “good faith” to resolve issues.
- Interim Measures No. 2 was prepared to address activities at Sites A and F. At Site A, the following activities were described in the 2001 work plan: removal of Dike 3 and riprap; construction of a “thread channel”; rebuild bank protection structures; and build two new bank protection structures. At Site F, the following activities were described in the 2001 work plan: removal of riprap and a culvert at Site F; and enhancement of the unnamed stream and pond at Site F. The 2001 work plan was implemented between October 24 and October 31, 2001. Baseline conditions were documented before and after completion of the 2001 work plan. Baseline conditions were documented by conducting Wolman Pebble Counts and elevation surveys, and taking photographs. After the work was completed, additional similar information was collected. The information will be used to monitor future changes. A report was prepared that documented the work (“Project Completion Report for Implementation of Interim Measures Work Plan No. 2,” November 26, 2001).

This final plan for Restoration, Revegetation, and Monitoring (the RRM Plan) of the remaining work has been under development and review by the landowner and the EPA as lead federal agency for this project. The RRM Plan will complete the restoration and revegetation of the project area that was initiated with Interim Measures No. 1 and Interim Measures No. 2. Implementation of the monitoring portion of the RRM Plan will document the success of the RRM Plan.

2.0 RESTORATION PLAN

The restoration portion of the RRM Plan (the Restoration Plan) is presented in Appendix A1. The Restoration Plan is organized by site locations. The “alpha” site description (i.e., Site G) is

a reference to how the site was described in a permit application to the U.S. Army Corps of Engineers and Oregon Department of State Lands. The “station” site description (i.e., Station 02+70) is a reference to a topographic survey conducted on the project area. The “EPA” number (i.e., EPA 09 + 00) refers to a numbering system in 100’s of feet established by EPA for purposes of this project. The EPA numbering system extends from south to north (upriver to down river) and is the primary numbering system that should be used when noted in the “Site Locations” column in the Appendix.

2.1 Restoration Work Plan

The measures proposed in the Restoration Plan for each site location have been evaluated by the landowner and the EPA. The measures proposed are specific activities that will be implemented by development of a Restoration Work Plan prior to implementation. The Restoration Work Plan will be submitted to EPA for review and comment within fifteen (15) days of entry of the Consent Decree.

2.2 Schedule

Implementation of the Restoration Work Plan will occur during the summer and fall following the entry of the Consent Decree to which this Appendix A is attached, after EPA’s approval of the Work Plan.

2.3 Restoration Work Completion Report

After the Restoration Work Plan has been implemented and all work completed, a completion report will be prepared and submitted to the EPA within thirty (30) days of completion of the work.

Within sixty (60) days of receipt of the Restoration Work Completion Report, EPA will identify in a letter to Gabriel any respects in which the work as completed does not fulfill the requirements of the Restoration Plan (EPA Restoration Plan Letter). If at some later date the United States seeks stipulated penalties from Gabriel as provided in the Consent Decree to which this Appendix A is attached, the United States agrees that it will only seek stipulated penalties from Gabriel for alleged failures to fulfill the requirements of the Restoration Plan set forth in the EPA Restoration Plan Letter. If no EPA Restoration Plan Letter is issued, then the United States agrees that it will not seek stipulated penalties from Gabriel for alleged failure to fulfill the requirements of the Restoration Plan.

3.0 REVEGETATION PLAN

This section sets forth the portion of the RMM Plan for revegetation (the Revegetation Plan). Eleven (11) areas will be subject to revegetation activities (Figure 2). The location, type of planting, and revegetation species proposed are discussed below.

Based on field visits to the site and discussions with EPA, the vegetative communities have been categorized for each site (Table 1). Then, a species list was compiled for each community (Table 2). The species list will be used to select the appropriate species for each community type. Plant spacing for various species are shown in Table 3.

Species needed for replanting will be harvested conservatively from the undisturbed adjacent communities. The existing communities are large enough that most re-vegetation stock could likely come from within them. If additional vegetation is needed or the timing of the re-planting effort does not coincide with ideal transplanting conditions, use of a local/regional nursery stock could be used.

Planting of various species will occur during the dormant season of fall or early spring following the restoration work, to increase survivability.

3.1 Site G, Station 02+70 (Dike 1) Access Road and Site H, Station 09+00 (Dike 2) Access Road, and Site H, Station 08+00 Berm Breach

Approximately 0.25 acres of a palustrine emergent-valley slope wetland were filled during construction of the Site G (Dike 1) access road. Most of the remaining berm portion of the access road at Site G will be removed. However, enough material (see volume below) will be left near the toe of the slope (above ordinary high water) for construction of a trail and drainage system for the U.S. Forest Service to provide a new access point across the Imnaha River to the Crazy Man Creek trail area. Approximately 0.0092 acres of the wetland will still need to contain fill material in order to construct the trail. The trail will be constructed to Forest Service standards and will extend east from the toe of the slope toward the Imnaha River, but will be above the ordinary high water line. The trail will be approximately 100 feet long (from the toe of the slope), 4 feet wide and 2 feet high (approximately 30 cubic yards of material). An appropriately-sized culvert (approximately 12-inches in diameter) will be installed near the toe of the slope to maintain the hydrology that occurs from subsurface seepage along the toe of the slope.

The Forest Service prepared the Imnaha Subbasin Multispecies Biological Assessment dated March 5, 2003 and completed Section 7 Endangered Species Act (ESA) Consultation with the USFWS, and ESA and Essential Fish Habitat Consultation with the NOAA Fisheries. These consultations included the future parking lot, trailhead and trail. Letters of Concurrence and Biological Opinions were prepared by USFWS (June 3, 2003; 1-17-03-F-0394) and NOAA Fisheries (June 17, 2003; 2003/00553 (LAA) and 2003/00620 (NLAA)). ODSL has agreed that it will not require separate state authorization or permit for trail construction and maintenance, and for the culvert replacement and maintenance. Approximately 0.9 acres of wetlands will be created and/or restored at the Fire Pond area as compensatory mitigation (see Section 8.0 for description of Fire Pond mitigation area and Figure F for mitigation area location) for fill associated with the trail construction.

The access road will be revegetated near the top of the existing slope and the tree line by planting a 10-foot-wide corridor across the access road. After material is removed between the toe of the slope and the east end of the berm, wetland and upland species similar to the adjacent vegetation communities will be planted if necessary to reestablish vegetation (Tables 1 and 2).

The access road to Site H will be modified by removing the culvert from the unnamed drainage, installing a low water ford, and revegetating the road on the west side of the unnamed drainage. The revegetation with riparian and upland species will be approximately 20 feet wide from the west bank of the unnamed drainage to the west.

The small breach in the berm south of Dike 2 will be enlarged to approximately 20 feet wide at the base, deepened, sloped, revegetated, and large woody debris installed.

3.2 Road between Sites H and I, Station 17+00 to 24+00

The road between Sites H and I will be scarified up to a depth of 18 inches and planted to reestablish vegetation. The scarification will start immediately north of the existing irrigation pump station on the road and extend to the existing Crazyman Creek crossing location. The scarified area will be planted with a combination of upland forest species.

3.3 Site I, Station 25+30 (EPA 008-009)

Site I was originally pasture land composed mostly of forbs and grasses. The access road to the Crazyman Creek Trail presently crosses the landowner's property via an easement that the USFS obtained from the landowner. The landowner and Forest Service are working together to affect a land exchange that moves the access road to a location near Site G. After the land exchange occurs, the landowner and USFS Service will restore the corridor including the access road on the west side of the Imnaha River (on the landowner's property) and the access road on the east side of the Imnaha River. Once the road has been removed, erosion control devices will be utilized to stabilize the soil until the seed bank has had a chance to regenerate (one season). If the seed bank is no longer viable or too many invasive species are emerging, then seed and plug collection from adjacent wetland pasture should commence for planting in the newly exposed wetland areas. A list of typical species found in wetland pastures is shown in Table 2.

3.4 Site J, Station 28+00 (EPA 009)

The restoration that will be conducted at this area consists of removing a turn-out and restoring the turn-out to wetland pasture. Tables 1 and 2 provide a list of species that are appropriate in this area.

3.5 Site J to Site A, Station 28+00 to 38+00 (EPA 009 to 021)

Supplemental riparian planting will occur in up to five (5) areas along the banks of the Imnaha River for approximately 750 feet to provide riparian buffer protection. In addition to planting the banks, large woody debris (LWD) will be placed in up to five (5) areas below the ordinary high water mark. Replanting efforts along the banks of the Imnaha River will include riparian species that include primarily Facultative species like cottonwood, willows, alders, and birch. Tables 1 and 2 provide a list of species that are appropriate in this area.

3.6 Henry Creek, Station 48+00 to 59+50

A planting plan will be implemented from the fire pond to the confluence with the Imnaha River (approximately 1,500 feet) to revegetate those areas where native riparian vegetation (willows) has not returned. The planting corridor will be 30 feet wide on average (15 feet from centerline of Henry Creek, on each side). The purpose of the planting plan is to provide primarily willow shade to this portion of the stream that is presently partially exposed to sun as the creek flows through a grass pasture. The appropriate plant species for this planting plan was derived from other small tributary communities in the vicinity. See Tables 1 and 2 for planting plan details.

3.7 Station 76+10 (EPA 050 to 053, Between Sites C and D)

Approximately 300 feet of berm and road will be scarified up to 18 inches and softened for planting of riparian species. The planting area will be between the Imnaha River and a row of existing black cottonwood trees. The backwater at this site will be revegetated in those areas that are not naturally revegetating. Tables 1 and 2 describe species to be included in the revegetation efforts.

3.8 Site E, Station 91+60 to 99+00 (EPA 066 to 073)

Site E is a broad area along the Imnaha River. This area will be narrowed to increase sinuosity as proposed in the Restoration Plan. Site E also will be scarified for riparian buffer planting with species shown in Tables 1 and 2.

3.9 Flood Channel West of Dike 5

The riparian area along the west and east banks of the flood channel will be planted with riparian species as shown in Tables 1 and 2.

3.10 Site F, Station 103+00 to 105+00 (EPA 078 to 080)

In fall 2001, restoration activities began on this portion of the banks of the Imnaha River under Interim Measures No. 2. Approximately 320 feet of riprap shore protection was removed to return the banks to pre-disturbance conditions. The next phase of restoration will include a riparian buffer planting plan. Tables 1 and 2 detail the efforts that will be used to restore shoreline vegetation to this area.

4.0 AS-BUILT REVEGETATION REPORT

An As-Built Revegetation Report will be prepared that documents the implementation and completion of the Revegetation Plan.

The As-Built Revegetation Report will present the following:

- Location of revegetation site
- Pre-restoration photographs

- Post-restoration photographs
- Objectives to be achieved at each location
- Species planted
- Number of plants installed
- Area (ft²) re-seeded
- Proposed monitoring locations
- Proposed monitoring activities
- Proposed success criteria to be achieved

Within sixty (60) days of receipt of the As-Built Revegetation Report, EPA will identify in a letter to Gabriel any respects in which the work as completed does not fulfill the requirements of the As-Built Revegetation Report (EPA As-Built Revegetation Letter). If at some later date the United States seeks stipulated penalties from Gabriel as provided in the Consent Decree, the United States agrees that it will only seek stipulated penalties from Gabriel for alleged failures to fulfill the requirements of the As-Built Revegetation Report set forth in the EPA As-Built Revegetation Letter. If no EPA As-Built Revegetation Letter is issued, then the United States agrees that it will not seek stipulated penalties from Gabriel for alleged failures to fulfill the requirements of the As-Built Revegetation Report.

Table 1. Categories of Types of Restoration for Each Site.

Site	Upland Forest	Wetland Forest	Wetland Pasture	Riparian
Site G/Dike 1	√	√		
Site H/Dike 2	√	√		
Road between Sites H and I	√			
Site I			√	
Site J			√	
Site J to Site A			√	√
Henry Creek			√	√
Station 76+10				√
Site E				√
Flood Channel west of Dike 5				√
Site F				√

Table 2. List of Plant Species for Each Category of Restoration.

Upland Forest Plant List	Wetland Forest Plant List
Douglas-fir (<i>Pseudotsuga menziesii</i>)	Black Cottonwood (<i>Populus balsamifera</i>)
Ponderosa Pine (<i>Pinus ponderosa</i>)	Alder (<i>Alnus rhombifolia</i>)
Spruce (<i>Picea</i> sp.)	Birch (<i>Betula</i> sp.)
Birch (<i>Betula</i> sp.)	Rose (<i>Rosa</i> sp.)
Alder (<i>Alnus rhombifolia</i>)	Dogwood (<i>Cornus stolonifera</i>)
Blue elderberry (<i>Sambucus cerulea</i>)	Willows (<i>Salix</i> sp.)
Currants (<i>Ribes</i> sp.)	Small-fruited bulrush (<i>Scirpus microcarpus</i>)
Snowberry (<i>Symphoricarpos</i> sp.)	Bentgrass (<i>Agrostis</i> sp.)
Sword fern (<i>Polystichum munitum</i>)	Slough sedge (<i>Carex obnupta</i>)
Wild rye (<i>Elymus</i> sp.)	Mannagrass (<i>Glyceria</i> sp.)
	Rush (<i>Juncus</i> sp.)
Wetland Pasture Plant List	Riparian Plant List
Soft rush (<i>Juncus effusus</i>)	Black Cottonwood (<i>Populus balsamifera</i>)
Spreading rush (<i>Juncus patens</i>)	Alder (<i>Alnus rhombifolia</i>)
Small-fruited bulrush (<i>Scirpus microcarpus</i>)	Birch (<i>Betula</i> sp.)
Slough sedge (<i>Carex obnupta</i>)	Douglas-fir (<i>Pseudotsuga menziesii</i>)
Bentgrass (<i>Agrostis</i> sp.)	Willows (<i>Salix</i> sp.)
	Dogwood (<i>Cornus stolonifera</i>)

Table 3. Plant Spacing Strategy.**Trees**

Species	Spacing
Douglas-fir (<i>Pseudotsuga menziesii</i>)	18 feet on center
Ponderosa Pine (<i>Pinus ponderosa</i>)	18 feet on center
Spruce (<i>Picea</i> sp.)	18 feet on center
Black Cottonwood (<i>Populus balsamifera</i>)	10 to 12 feet on center / stakes
Birch (<i>Betula</i> sp.)	15 feet on center
Alder (<i>Alnus rhombifolia</i>)	12 feet on center / clusters of 3 to 7

(Table 3 continued.)

Shrubs

Species	Spacing
Blue elderberry (<i>Sambucus cerulea</i>)	12 feet on center
Dogwood (<i>Cornus stolonifera</i>)	12 feet on center / clusters of 3 to 5
Rose (<i>Rosa</i> sp.)	8 feet on center / clusters of 7 to 9
Willows (<i>Salix</i> sp.)	fascine bundles/stakes in clusters of 7
Currants (<i>Ribes</i> sp.)	8 feet on center
Snowberry (<i>Symphoricarpos</i> sp.)	8 feet on center
Sword fern (<i>Polystichum munitum</i>)	6 feet on center

Forbs and Grasses

Species	Spacing*
Small-fruited bulrush (<i>Scirpus microcarpus</i>)	Seed and local plug recruitment
Slough sedge (<i>Carex obnupta</i>)	Seed and local plug recruitment
Rush (<i>Juncus</i> sp.)	Seed and local plug recruitment
Soft rush (<i>Juncus effusus</i>)	Seed and local plug recruitment
Spreading rush (<i>Juncus patens</i>)	Seed and local plug recruitment
Bentgrass (<i>Agrostis</i> sp.)	Seed/lbs per acre
Mannagrass (<i>Glyceria</i> sp.)	Seed/lbs per acre
Wild rye (<i>Elymus</i> sp.)	Seed/lbs per acre

* Spacing dependent on amount of seeds and plug sources available.

5.0 MONITORING PLAN

The monitoring portions of the RRM Plan (the Monitoring Plan) will be implemented to evaluate the success of the Restoration Plan and the As-Built Revegetation Plan.

5.1 Vegetation

Monitoring stations will be established at each of the eleven (11) revegetation areas to follow the progress of the planting effort for a period of five (5) years. Each monitoring point will be appropriately marked.

Monitoring will include the following data collection:

- Photo-documentation at each site
- Representative plant community analysis including:
 - Species cover per stratum
 - Percent invasive/non-native species
 - Success or vigor of community

Development of the vegetative community throughout the remainder of the project area will be documented by a photographic record during the site visits between August and October, and will coincide with other monitoring activities. The pre-restoration vegetative community was documented using photo-documentation from a field visit in 2002. Post-restoration photo-documentation of the vegetative community will be done one year after the restoration work is conducted and every other year thereafter within the five-year monitoring period. For example, if restoration occurs during 2005, then monitoring will occur during 2006, 2008, and 2010.

5.2 Wolman Pebble Counts

Wolman Pebble Counts will be conducted to monitor channel stability within the restored channel (restoration work was completed in October 2001) below Site A (Dike 3). These pebble counts will be used to determine the suitability of the channel substrate for fish and to monitor the movement of materials within the channels during high flow events. Pebble counts were conducted before the October 2001 restoration work, and in 2002 after the first year of restoration. Monitoring will be conducted in 2005 and 2007 within the five-year monitoring period in areas downstream and upstream of Dike 3 (one transect will be located at the mouth of the west and east channels and one at the downstream end).

5.3 Streambed Elevations at Site A (Dike 3), Station 38+00

Streambed elevations will be monitored in the west channel, east channel, and thread channel to document changes. Elevations will be monitored by measurements with a level and stadia rod at transects across the river channel. Elevations were documented before restoration (2001) and were documented the first year after restoration (2002) and will be documented in 2005 and 2007 within the five-year monitoring period in the following locations:

- West channel – 3 transects
- East channel – 2 transects
- Thread channel – 1 transect

5.4 Monitoring Reports

A report to monitor results under the RRM Plan (Monitoring Report) will be completed and submitted by December 15 in the year when monitoring is scheduled to occur.

Within sixty (60) days of receipt of the Monitoring Report, EPA will identify in a letter to Gabriel any respects in which the Monitoring Report does not correctly evaluate the success of the Restoration Plan and the As-Built Revegetation Plan (EPA Monitoring Report Letter). If at some later date the United States seeks stipulated penalties from Gabriel as provided in the Consent Decree, the United States agrees that it will only seek stipulated penalties from Gabriel for alleged failures to fulfill the requirements of the Monitoring Plan set forth in the EPA Monitoring Report Letter. If no EPA Monitoring Report Letter is issued, then the United States agrees that it will not seek stipulated penalties from Gabriel for alleged failures to fulfill the requirements of the Monitoring Plan.

5.4.1 Vegetation

Each Monitoring Report will present the methods and results. Data will be discussed according to success criteria. Success criteria for the Palette Ranch Site include a minimum of 50 percent survival of planted species within each site (and plant community) that are re-vegetated, and with no more than 10 percent non-native or invasive species in each site. Each of the eleven (11) revegetation areas will be assessed separately and each will be required to meet the success criteria. If a site is not on track to successfully meet one of the criteria, measures will be discussed to provide guidance to remedy the problem areas. The As-Built Revegetation Report will be the basis for comparison.

A narrative and photographic record will be presented that follows the progress of vegetative community development for the remainder of the project area.

5.4.2 Wolman Pebble Counts

The Monitoring Report will document the methods and results. Comparisons of pebble counts will be made by comparing counts before and after restoration in the west, east, and thread channels.

5.4.3 Streambed Elevations at Site A, Station 38+00 (Dike 3)

The Monitoring Report will document the methods and results. Comparisons of elevations will be made before and after restoration in the west, east, and thread channels.

6.0 CONTINGENCY PLAN FOR REVEGETATION

In the event that the Revegetation Plan is not successful, measures will be implemented to determine a course of corrective action as follows:

- Document the status of the revegetation by species and density of growth
- Estimate the actual percent survival and the desired survival
- Compare the actual status with the as-built documentation

- Report the comparisons to EPA and propose corrective actions
- Meet with EPA to discuss the comparison and corrective actions
- Implement the agreed upon corrective actions
- Monitor the success of the corrective actions

7.0 SPECIAL CONDITIONS FOR RESTORATION, REVEGETATION, AND MONITORING ACTIVITIES

These conditions pertain to the removal and fill activities necessary to complete the required Restoration, Revegetation and Monitoring.

1. Fill and removal activities in the Imnaha River and its tributaries shall be conducted between July 15 and August 15, unless otherwise coordinated with ODFW and ODSL and approved in writing by EPA.
2. The following turbidity standard applies to any work during the normal in-water work period. The authorized work shall not cause turbidity of affected waters to exceed 10% over natural background turbidity 100 feet downstream of the fill point. The turbidity standard can be exceeded for a maximum of 2 hours (limited duration) provided all practicable erosion control measures have been implemented. These projects may also be subject to additional reporting requirements.
3. Turbidity shall be monitored during active in-water work periods. Monitoring points shall be at an undisturbed site (representative background) 100 feet upstream from the turbidity causing activity (i.e., removal, fill, or discharge point), 100 feet downstream from the point of fill/removal activity, and at the point of the fill/removal activity. A turbidimeter is recommended, however, visual gauging is acceptable. Turbidity that is visible over background is considered an exceedance of the standard.
4. The following erosion control measures (and others as appropriate) shall be observed in any location where soils are disturbed or exposed by construction activities and where erosion/run-off may enter into any waters of the state:
 - a. Filter bags, sediment fences, sediment traps or catch basins, mulching, or other measures shall be appropriately used to prevent movement of soil from uplands into waterways or wetlands.
 - b. To prevent erosion, use of compost berms, impervious materials or other equally effective methods, shall be used to protect soil stockpiled during rain events or when the stockpile site is not moved or reshaped for more than 48 hours.
 - c. Erosion control measures shall be inspected and maintained daily, or more frequently as necessary, to ensure their continued effectiveness and shall remain in place until all exposed soil is stabilized.
 - d. Unless part of the authorized permanent fill, all construction access points through, and staging areas in, riparian or wetland areas shall use removable pads or mats to prevent soil compaction. However, in some wetland areas under dry summer conditions, this requirement may be waived upon approval by EPA.

- e. At project completion, disturbed areas with soil exposed by construction activities shall be stabilized by native vegetative plantings/seeding. Sterile grass may be used instead of native vegetation for temporary sediment control. If soils (excluding exposed gravel deposits) are to remain exposed more than one growing season after completion of the permitted work, they shall be covered with erosion control pads, mats or similar erosion control devices until vegetative stabilization is installed.
 - f. Waste materials and spoils shall be placed in an upland location above the top of bank and outside of any wetlands and shall be prevented from eroding back into waterways or wetlands.
5. The erosion control measures listed in Condition 4 shall be maintained as necessary to ensure their continued effectiveness, until soils (excluding exposed gravel deposits) become stabilized. All erosion control structures shall be removed when project is complete and soils are stabilized and vegetated.
6. Petroleum products, chemicals, fresh cement, sandblasted material, and chipped paint or other deleterious waste materials shall not be allowed to enter waters of the state. No wood treated with leachable preservatives shall be placed in the waterway. Machinery refueling is to occur off-site or in a confined designated area to prevent spillage into waters of the state. Project-related spills into water of the state or onto land with a potential to enter waters of the state shall be reported to EPA at 503-326-2716 and the Oregon Emergency Response System (OERS) at 1-800-452-0311.
7. Oregon Dept. of Fish and Wildlife fish passage and salvage criteria shall be met during and after any construction or dewatering. Any dewatering and subsequent fish salvage shall be coordinated with ODFW (Brad Smith (541) 426-3279).
8. Riprap shall be placed under these conditions:
- Only clean, erosion resistant rock from an upland source shall be used as riprap. No broken concrete or asphalt shall be used.
 - Riprap shall be placed in a manner that does not increase the upland surface area.
 - All riprap rock shall be placed, not dumped, from above the bankline.
 - The completed revetment shall have a slope no steeper than 2:1.
 - There shall be no operation of equipment in the water except to dig a toe trench.
 - Placement of riprap shall allow the planting of woody vegetation and following placement of the riprap it shall be planted as described in the "Restoration, Revegetation, and Monitoring Plan".
9. The EPA retains the authority to temporarily halt or modify the project in case of unforeseen damage to natural resources.
10. If any archaeological resources and/or artifacts are uncovered during excavation, all construction activity shall immediately cease. The EPA (phone: 503-326-2716) and State Historic Preservation Office shall be contacted (phone: 503-986-0707).

8.0 FIRE POND WETLAND MITIGATION AREA

The landowner will restore Henry Creek and its adjacent wetlands as compensatory mitigation for all remaining fill material not identified for removal in this RRM Plan. Restoration in this area will be accomplished by not rebuilding the former dam that created the fire pond on Henry Creek. The former pond banks on the north side will be regraded to provide for better revegetation and the stream will be allowed to naturally meander through the former pond area. Approximately 0.9 acres of palustrine emergent/valley slope wetlands will be created and/or restored by allowing surface and subsurface hydrology to be spread out over areas adjacent to Henry Creek where the former dam had formed an open water pond with a depth of 6 to 8 feet. Allowing unimpeded flows from Henry Creek and surface/subsurface flows from the adjacent slopes to become reestablished will create and/or restore approximately 0.9 acres of palustrine emergent valley slope wetlands and add 300 feet of natural channel back to Henry Creek. The restored wetland and creek channels will be revegetated through a combination of natural revegetation and supplemental plantings to create adequate shading to salmonids that would use Henry Creek. Figure F identifies the Fire Pond mitigation area.

APPENDIX A1

Restoration Plan, Palette Ranch, Imnaha River, Oregon

RESTORATION PLAN

PALLETTE RANCH, IMNAHA RIVER, OREGON

April 5, 2005

Six figures are included in the Restoration Plan. Figure A summarizes the work activities for the project area. Figures B, C, D, and E provide more detail of the project work activities. Figure F identifies the Fire Pond Mitigation Area.

Site Locations	Measures to be Implemented
Site G - Dike 1 or Station 02+70	Dike 1, the dike across the backwater flood channel at this site, was removed as a voluntary removal by the landowner as a show of "good faith" in late 1998 as part of an agreement for interim measures with the landowner. The majority of the remaining portion of the access road to the dike includes a portion across a palustrine emergent valley slope wetland/drainage channel. The removal of the remaining portion of the road from the drainage will be coordinated with the U.S. Forest Service through a land exchange in connection with the trail head development. Enough material will be left near the toe of the slope for construction of a trail and drainage system consisting of an appropriately-sized culvert by the Forest Service to Forest Service standards. The trail will be approximately 100 feet long (from the toe of the slope), 4 feet wide and 2 feet high (approximately 30 cubic yards of material). An appropriately -sized culvert (approximately 12 inches in diameter) will be installed near the toe of the slope to maintain the hydrology that occurs from subsurface seepage along the toe of the slope. The corridor created by the access road will be revegetated with appropriate native vegetation to obscure visual impacts from this area from the county road. The remaining fill (.0092 acres) associated with the trail construction will be mitigated for at the Fire Pond Mitigation area by restoration of approximately 0.90 acres of palustrine emergent/ valley slope wetlands.
Site H - Dike 2 or Station 09+00	Dike 2 was removed as a voluntary removal by the landowner as a show of "good faith" during the fall of 1998 as part of an agreement with the landowner for interim measures. Large woody debris with intact root wads will be placed at four locations in the side channel. The culvert in the access road will be removed. The corridor that was created to accommodate access will be revegetated at the far end (nearest to the county road) with appropriate native vegetation (willows, alders, water birch, dogwood, rose, etc.) to obscure visual impacts.
Site H – Berm Station 08+00	The small breach in the berm south of the Dike 2 will be enlarged by approximately 15 feet (to establish an approximately 20 foot wide opening) and the slope graded to 3 to 1, and the breach deepened by 1 to 2 feet. The downstream (north) bank of the breach will be sloped and curved towards the river to minimize the need for additional armorment. However, a combination of rootwads and riprap will be placed along a 15-foot section of the slope that is nearest to the river channel. The slopes will be revegetated with appropriate riparian plantings (willows, alders, water birch, dogwood, rose, etc.) A log with a root wad will be placed at the upstream (south) opening of the breach.
Station 17+00 to 24+00	The road between Sites H and I (from approximately Station 17+00 to 24+00) will be ripped to a depth of up to 18 inches and planted to reestablish vegetation.

Site Locations	Measures to be Implemented
Site I - Station 25+30 (EPA 008 to 009)	The temporary access road to the Crazyman Creek Trail presently crosses the landowner's property via an easement that the U.S. Forest Service obtained from the landowner. The landowner and Forest Service are presently working together to affect a land exchange that moves the access road to a location near Site G. After the land exchange occurs, the landowner and Forest Service will restore the corridor including the access road on the west side of the Imnaha River (on the landowner's property) and the access road on the east side of the Imnaha River.
Site J - Station 28+00, (EPA 009 to 021) Station 29+00 to 38+00	The turnaround constructed on the west side of the berm located in a wetland area, at EPA 012+00, will be removed. If the vegetation does not regenerate by the second year after removal, the revegetation plan will be implemented for wetland pasture plants. Supplemental riparian plantings (in bare areas) and large woody debris placement up to 5 places) will occur on the river side adjacent the berm between Sites I and A to enhance the riparian area and provide additional protection to the berm. These measures are to enhance the riparian buffer that has become too narrow to provide adequate protection during high flow events to the remaining berm and adjacent pastures.
Site A - Dike 3, Station 38+00, (EPA 022 to 029).	Dike 3 removal and thread channel construction was performed as part of an agreement with the landowner for interim measures in October 2001.
Site B - Station 44+00 (EPA 030 to 032)	The stream bed material piled to form the berm in this section will be left to erode naturally.
Site C - Henry Creek, Station 59+50, (EPA 034+46) Fire Pond Station 47+00 Dike 4 - Station 60+50 to 61+00 (EPA 036+00 to 036+50)	Henry Creek – A low water ford will be constructed to replace the existing culvert at the mouth of Henry Creek to provide adequate drainage and fish passage. The water ford will be of sufficient size to accommodate tractor or limited vehicular use during drier, low flow conditions. The downstream side of the ford will be hardened with root wads and riprap. Fire Pond - The remaining pond banks of the "fire pond" will be revegetated and the stream allowed to flow through the former pond area. The banks on the north side will be graded to 3 to 1 slopes and revegetated with native riparian species as desired by the landowner. The height of Dike 4 will be lowered by 2 feet along a 50 foot linear section near the downstream end of the Dike (approximately at EPA 036+00 to EPA 036+50) to provide connectivity to the main river channel during high flow events. This dip in the dike will be angled to direct high flow events along the far end of the pasture area, removal of existing riparian vegetation will be minimized.
Station 71+50 (EPA 053)	This section of berm will be allowed to erode naturally.
Station 76+10 - Between Sites C and D (EPA 049+50) Station 76+10 to 79+10 (EPA 050 to 053)	This area is a newly formed backwater area created during the 1997 flood. Presently there is a culvert that provides minimal connection of this backwater area to the main channel. The culvert at EPA 049+50 will be removed and a low water ford (10 feet wide at base), armored at the downstream side of the opening, will be constructed to allow free access to this side channel area from the main channel. (See Additional Measures - Fisheries Mitigation, Item 5). Soil (6-12 inches) from the culvert site will be placed, if needed, on the east bank of the backwater area to promote vegetative growth. A portion of the west bank at the upper end of the backwater will be sloped to facilitate revegetation of riparian species to provide shading for fisheries use. The berm will be retained to naturally erode. The top of the berm will be scarified up to 18 inches and planting of the berm area with native vegetation will occur.

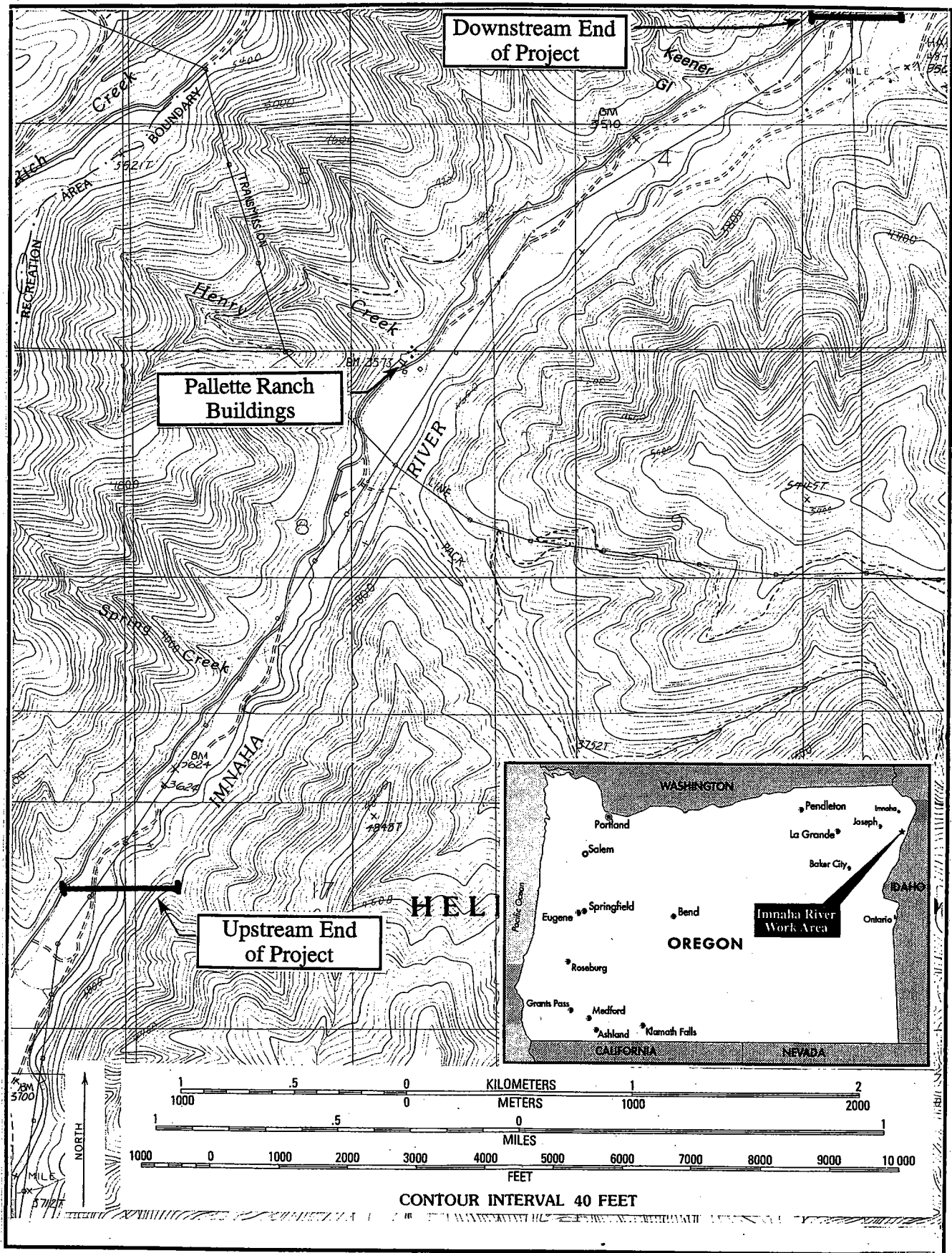
Site Locations	Measures to be Implemented
Site D - Station 87+30 (EPA 061+42)	The culvert at this location will be left in place. The backwater will be enhanced by deepening a 10-foot linear portion by 2 to 3 feet.
<p>Site E - Between Stations 91+60 and 99+00 (EPA 066 to 073)</p> <p>Station 93+00 to 96+00 (EPA 068 to 071)</p> <p>Site E (Dike 5) Station 97+00 to 98+00 (EPA 072 to 073)</p>	<p>Site E will be scarified up to 18 inches and replanted with native vegetation.</p> <p>Sinuosity will be added to the curve by narrowing (by up to 10 feet) a 300-foot section of Site E. The riprap will be removed from its present location along the berm and stockpiled on site for later use on site. A portion of the riprap will be used to stabilize the new bank up to the ordinary high water elevation (approximately 3 feet vertically from the base of the riprap). The remainder of the stockpiled riprap not used for stabilizing the bankline will be removed. The gravel bar immediately east of the bankline will not be disturbed.</p> <p>Dike 5 will be lowered by 2 feet in elevation to allow high flood flow access to the area. Riprap on the lowered Dike will be replaced from the stockpiled riprap.</p>
Site F - Station 103 to 105+00 (EPA 078 to 080)	Site F, Pond Area, was restored in October 2001 in accordance with an agreement with the landowner, as a voluntary show of "good faith", for implementation of Interim Measures No. 2. However, additional native riparian plantings are still required along the 320-foot section of river bank where riprap was removed (Station 103+00 to 105+00).

Additional Measures	Specific Measures
A. Monitoring Studies	<p>1) The landowner will allow ODFW or U.S. Forest Service personnel to gain access one time per year to the river along his property for redd counts and snorkel surveys provided that the landowner will receive timely results from such surveys. Written permission will be requested and obtained from the landowner prior to going onto the ranch property to conduct any surveys.</p> <p>2) Wolman Pebble Counts will be conducted to monitor channel stability within the restored channels below Dike 3. Pebble counts will be used to determine the suitability of the channel substrate for fishery reproduction and monitor the movement of materials within the channels during high flow events. Pebble counts were conducted prior to restoration (2001) and the first year after restoration (2002). Pebble counts will be conducted in years 2005 and 2007 in areas downstream and upstream of the Dike 3 (one transect will be located at the mouth of the west and east channels and one at the downstream end). The build up of bedload materials within that channel will be measured by elevation surveys across each transect.</p> <p>3) The landowner will monitor the status of revegetation efforts and photograph the side channels behind the removed sections of Dikes 1, 2, and 3. Revegetation performance standards will be established as part of this restoration proposal. Photos will be taken from the upstream end of the project down to the lower most portion of the project to document changes in vegetation from replanting. Photo documentation and monitoring reports will be prepared prior to restoration, the first year after restoration, and in alternative years until the 5th year of monitoring is reached.</p>

Additional Measures	Specific Measures
B. Wetland Mitigation	<p>The berm between the Forest Service access road to Crazyman Creek and the connecting dike impacted approximately 0.25 acres of palustrine emergent/ valley slope wetlands. Reconstruction of the fill material to construct the Forest Service trail will require 0.0092 acres of fill to stay in place. The “no-net-loss” of wetlands will be achieved with the proposed restoration and mitigation measures as follows:</p> <ol style="list-style-type: none"> 1. Wetlands impacted by roads and/or road crossings will be either restored or mitigated. 2. The landowner and Forest Service restoration of the Crazyman Creek corridor will also restore hydrologic connectivity of the wetland north and south of the Forest Service access road easement. 3. The landowner will restore Henry Creek as wetlands mitigation by not rebuilding the old fire pond on Henry Creek. The remaining pond banks on the north side will be regraded and the stream meandered through the former pond area. The banks will be graded to 3 to 1 slopes and revegetated with riparian species. Approximately 0.90 acres of adjacent palustrine emergent wetland and 300 feet of stream channel will be restored to Henry Creek . 4. Wetland development will be encouraged at the new flood return channel at Station 76+10 (EPA 050+00). A portion of the west bank at the upper end of the backwater will be sloped to facilitate revegetation of riparian species to provide shading for fisheries use.
C. Fisheries Mitigation	<ol style="list-style-type: none"> 1. Dike 1 - Large woody debris (LWD) was placed in the side channel after the dike removal. No additional LWD is necessary at this location. 2. Dike 3 - Large woody debris with intact root wads will be placed at 3 locations within the newly restored side channel (west side channel) to create instream cover that is now limited to cobbles and boulders. The placement of LWD will be evaluated by the landowner to insure that channel blocking does not occur that may damage landowner property during flooding 3. Henry Creek - The following mitigation measures are proposed: <ol style="list-style-type: none"> a.) Restoration of the stream where the former fire pond was located will benefit fisheries habitat. b.) A vegetative buffer 15 feet on each side of the centerline of Henry Creek will be established to provide shading to Henry Creek. 4. New flood return channel at Station 76+10 (EPA 049+50) - The culvert will be removed and the opening enlarged to approximately 10 feet in width for fish access during flood flows. The north end of the opening will be armored to prevent erosion. The backwater area formed as a result of the flood will be enhanced by placement of soil on top of the bare rocks on the east side of the side channel to provide a medium for planting and then planted with riparian vegetation. This vegetation will provide shading to the backwater area. 5. Portions of the Site E hayfield damaged by the 1997 flood will not be reclaimed by the landowner. The area has been developed into a backwater area associated with Site F pursuant to the Interim Measures No. 2 Work Plan (October 8, 2001). Riparian areas will be developed along the main channel of the backwater area with riparian plantings along the west and east banks (where necessary) to provide shading.
D. Freeflow Capacity	<p>Freeflow conditions have been improved with the interim restoration measures at Dikes 1, 2 and 3. These restoration measures have and will further enhance freeflow capacity.</p>

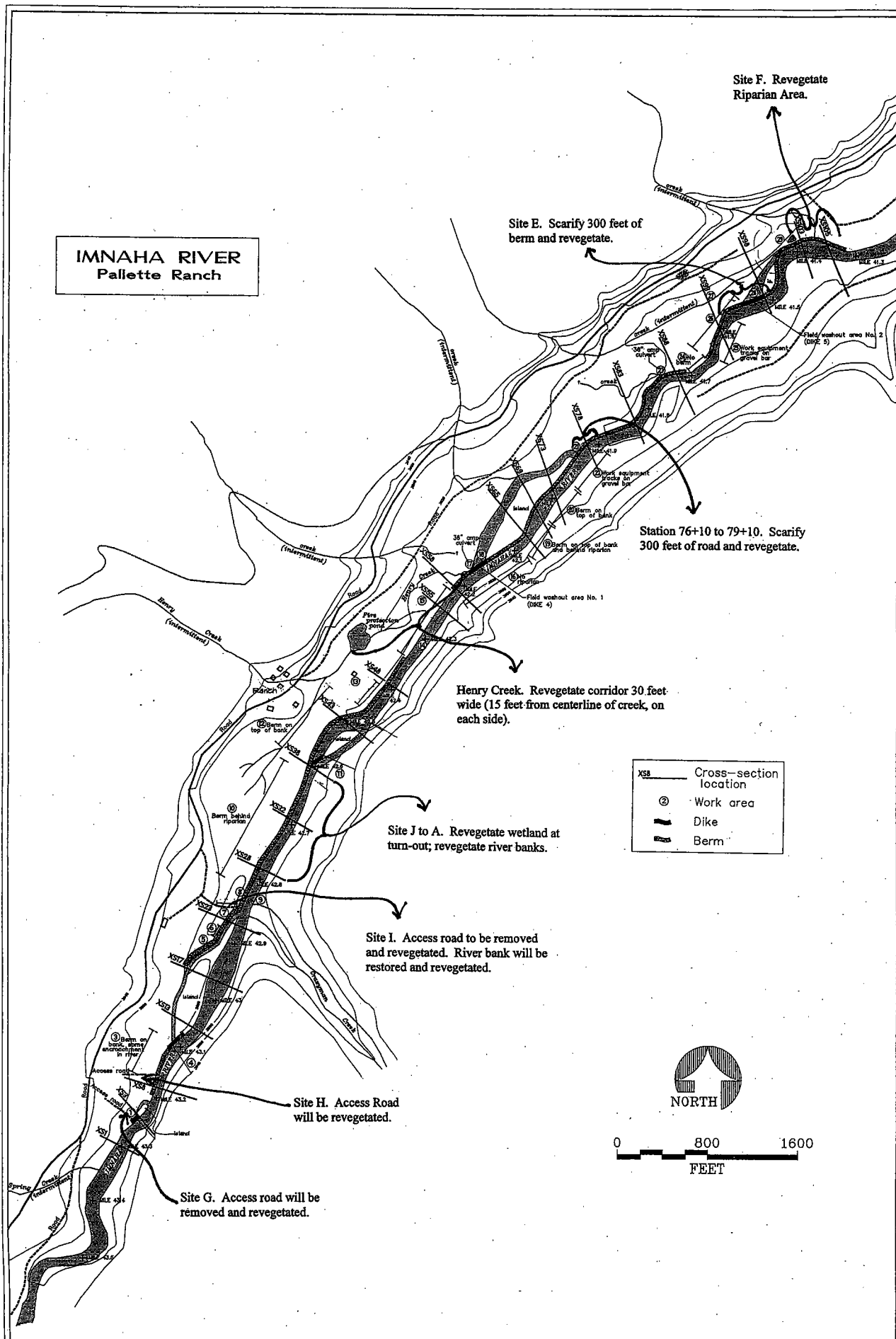
Additional Measures	Specific Measures
E. Wild and Scenic River Mitigation	Revegetation with appropriate wetland, riparian, and upland species will be required as described in the Restoration, Revegetation, and Monitoring Plan. Noxious weed control will be provided for in all areas disturbed by the restoration activities.

Figures 1 and 2
for
Restoration, Revegetation, and Monitoring Plan



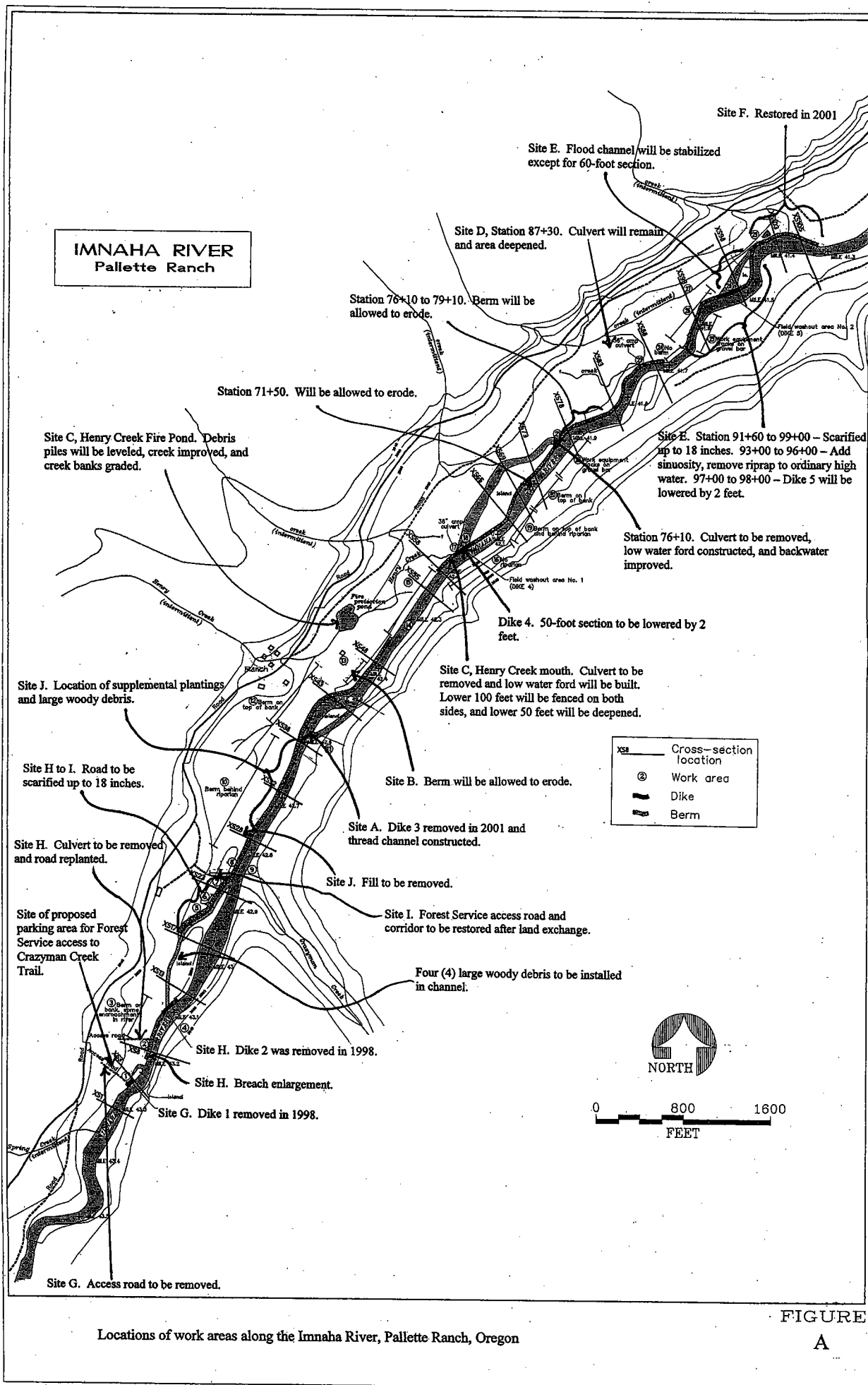
Project Vicinity - Palette Ranch Project, Wallowa County, Oregon.

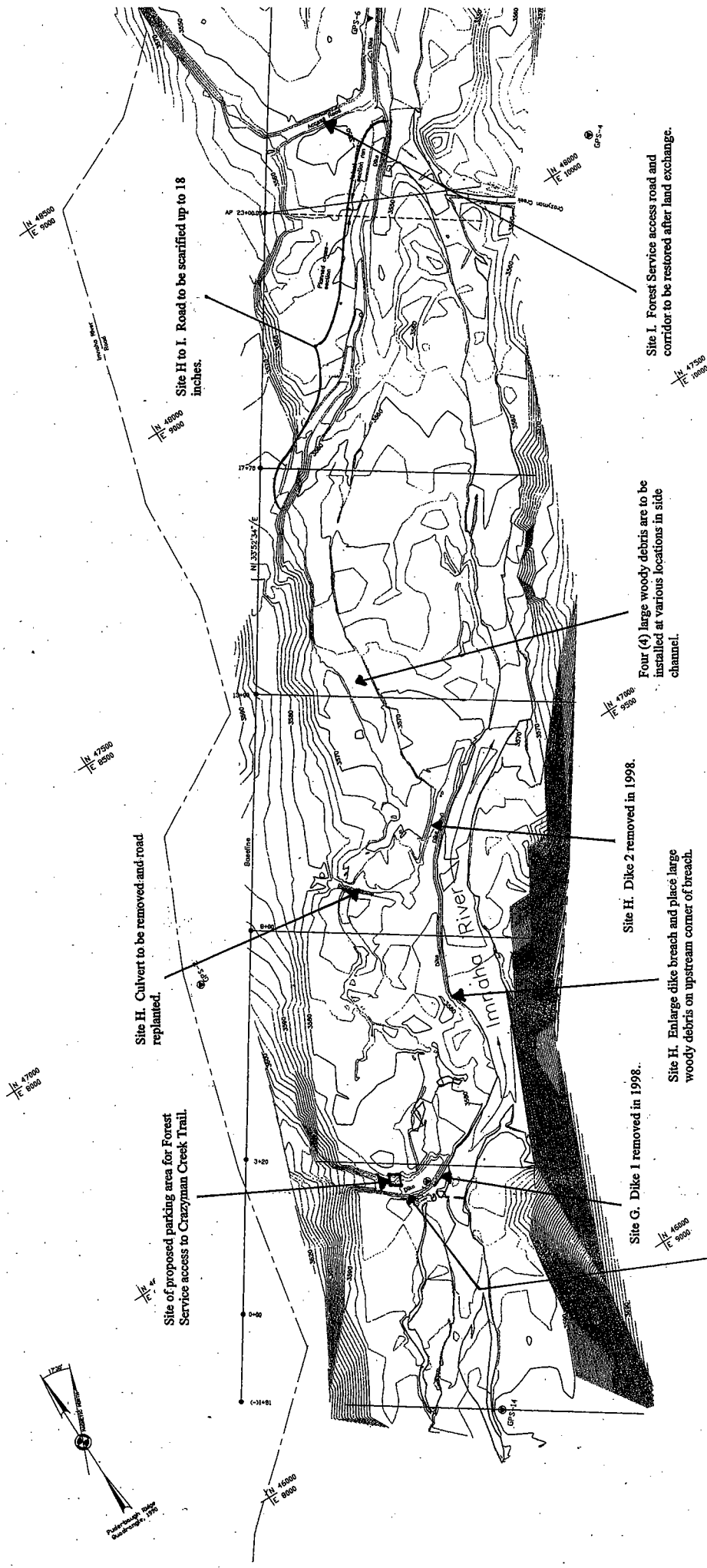
Figure
1



Location of revegetation areas, Palette Ranch, Oregon.

Appendix A1 Figures



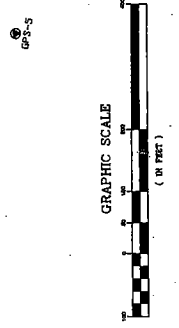


Notes:

- 1) This is a preliminary submission for the Pollette Ranch topographic mapping project and is subject to changes in the project.
- 2) This map is derived from a combination of data gathered by aerial photography and interpretation, GPS static and real-time observations, and conventional ground survey methodology.
- 3) Horizontal positioning is on an assumed local datum with GPS 16 on the Basis of Coordinates of N=50,000 E=10,000.
- 4) Vertical control was established using three (3) local National Geodetic Survey (NGS) benchmarks, and U.S. National Geodetic Survey's (NGS) 85 model.
- 5) Basis of Bearing is the True Meridian derived from GPS observations.
- 6) The Impeha River flood and the creek and crossing power lines shown herein were digitized from USGS Outcreek "Hydrographic Ridge, 1980".
- 7) BE ADVISED: The contours of the bottom of the Impeha River as by photogrammetric methods are not subject to distortion of light, etc. River bottom contours should NOT be used for engineering or design. The cross-section data and plots are based upon conventional field survey methods and may be used as appropriate.
- 8) Aerial photography was flown on February 16, 1998.

FIGURE B

Wallowa Associates P.O. Box 847044 Klamath Falls, Oregon 97604 Phone (531) 532-9049	
Topographic Map - Pollette Ranch	
THIS MAP WILLIAMETTE MERIDIAN, OREGON	
SCALE 1" = 100'	SHEET NO. 1 of 4
DRAWN BY J. B. B.	CHECKED J. B. B.
DATE OF SURVEY August 1998	
PROJECT NO. WA - 710041/715	



- ### Legend
- ▲ GPS postulated control point
 - GPS postulated photo control point
 - Bench Mark included within vertical network. Horizontal position is approximate.
 - Stationing along baseline
 - ↑ Position of the cross-section effects in relation to the baseline station
 - Hydrography (in wet) from photo interpretation

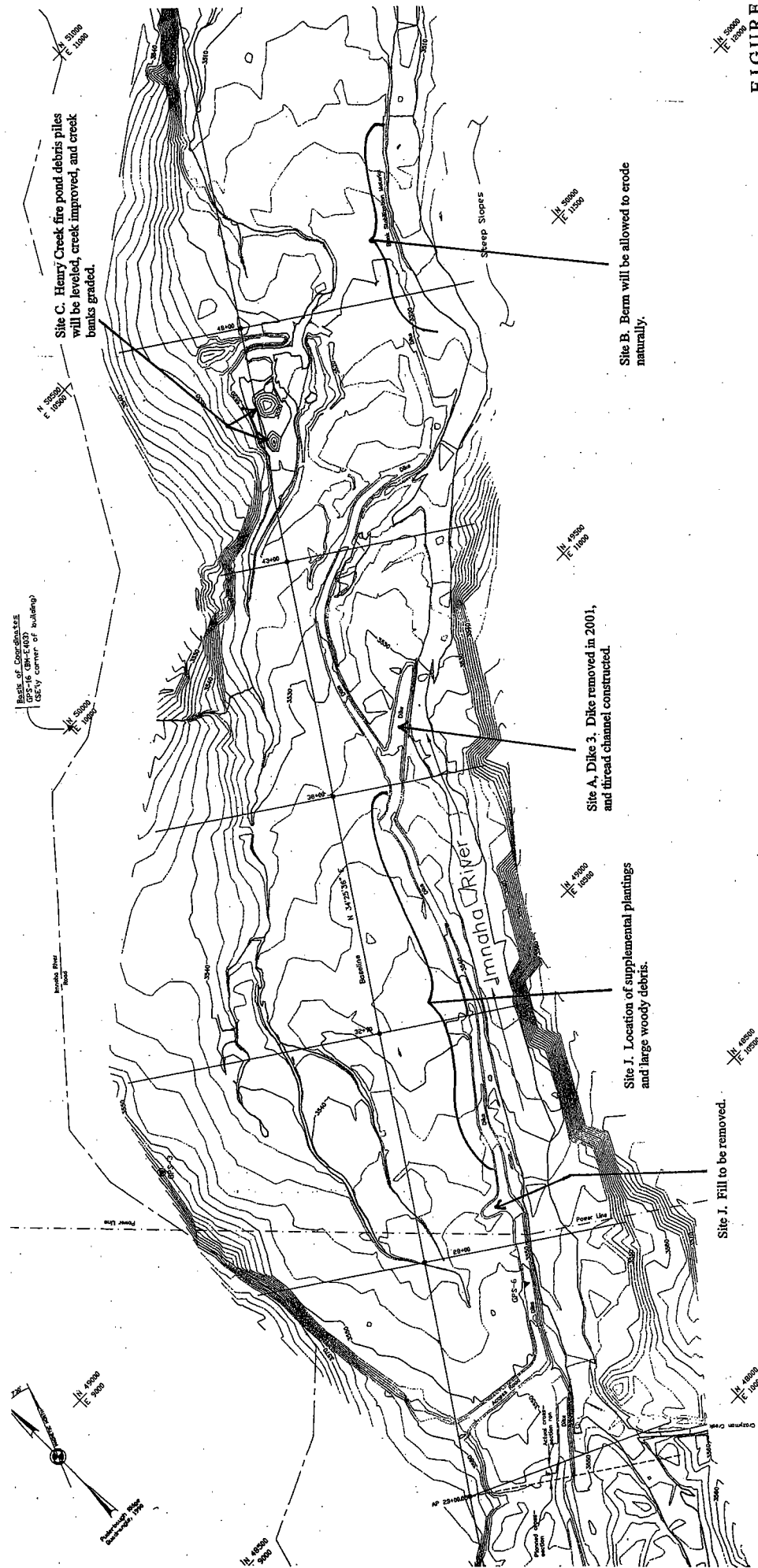


FIGURE C

Swallow Associates, Inc.
 14100 NE 14th Avenue, Suite 100
 Portland, Oregon 97230
 Phone: (503) 432-3019

Topographic Map - Pallatte Ranch

DATE OF SURVEY: 7/24/05
 SHEET NO.: 8 of 4
 PROJECT NO.: 712041/712
 DRAWN BY: [blank]
 CHECKED: [blank]
 DATE: [blank]

14100 NE 14th Avenue, Suite 100
 Portland, Oregon 97230
 Phone: (503) 432-3019

Legend

- ▲ GPS positioned control point
- GPS positioned photo control point
- Bench Mark included within vertical network. Horizontal position is approximate.
- Stationing along baseline
- ↑ Position of the cross-section offsets in relation to the baseline station
- Hydrography (in wet) from photo interpretation.

GRAPHIC SCALE
 (in feet)
 0 100 200 300 400 500 600 700 800 900 1000

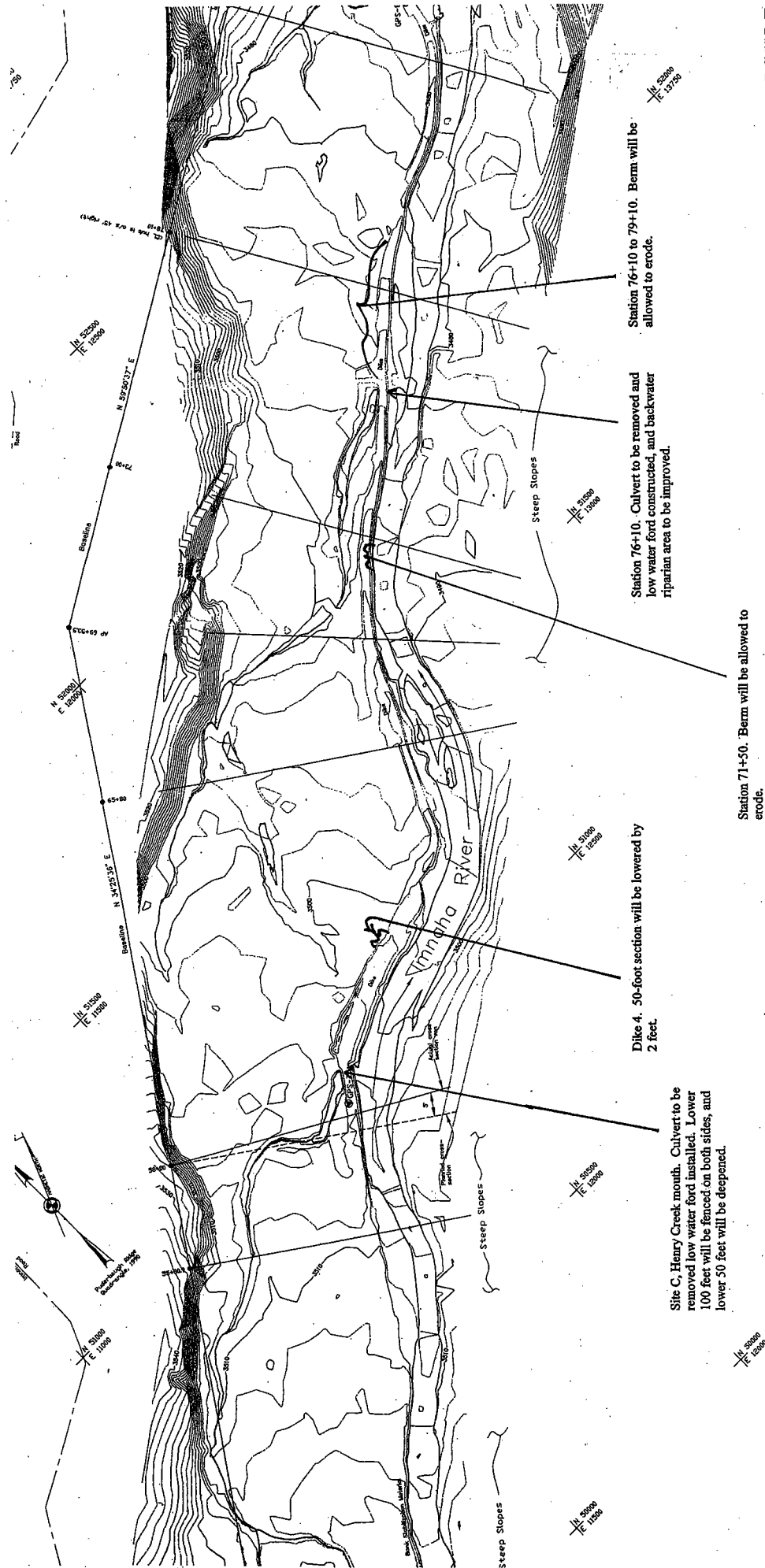


FIGURE
D

Legend

- ▲ GPS positioned control point
- ⊙ GPS positioned photo control point
- ⊙ Bench mark included within vertical network. Horizontal position is approximate.
- Stationing along baseline
- ↑ Position of the cross-section affects in relation to the baseline station
- Hydrography (in wet) from photo interpretation



Wallowa Associates 145 N. 4th St. Joseph, Oregon 97846 (541) 432-8049	
Topographic Map - Palette Ranch	
SHEET No. 3 of 4	DATE OF SURVEY 2-21-20
DRAWN BY JAW	CHECKED JAW
PROJECT No. 71204/715 WA - 71204/715	

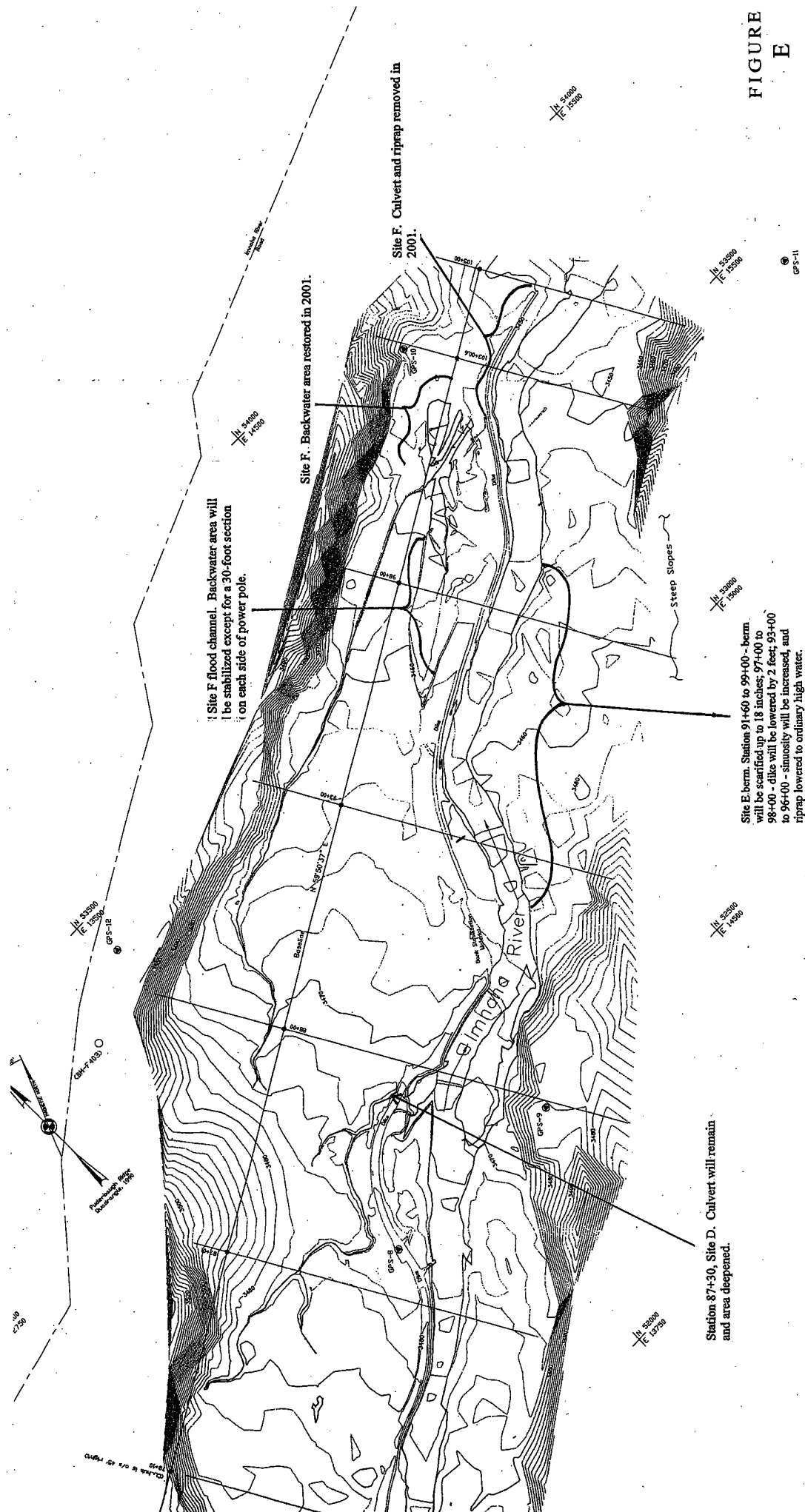


FIGURE E

Log

- ▲ GPS positioned control point
- ⊙ GPS positioned photo control point
- Bench Mark included within vertical network.
Horizontal position is approximate.
- Stationing along baseline
- ◆ Position of the cross-section offsets
in relation to the baseline station
- ≡ Hydrography (a. wet) from photo interpretation

Wallowa Associates
P.O. Box 847
Joseph, Oregon 97846
(503) 437-0749

Topographic Map - Palette Ranch

NOTES

T4S R48E Willamette Meridian. Oregon

SCALE 1" = 100'	SHEET No. 4 of 4	DATE OF SURVEY 1-19-58 Beginning 3-17-58
DRAWN BY	CHECKED	PROJECT No.

GRAPHIC SCALE

(for source)